REMARKS/ARGUMENTS

Claims 1-28 are pending, while Claims 14 and 23-28 have been withdrawn in response to a restriction requirement. The Office Action objects to the drawings, as Claim 7 is allegedly not shown in the drawings. The Office Action rejects Claim 7 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. In addition, Claims 1, 2, 4-10, 12, 16, 17, 19, and 20-22 are rejected under 35 U.S.C. §§102(b) and/or 103(a) over U.S. Patent No. 4,842,218 to Groutage et al. Claims 1-10, 12, and 16-22 are rejected under 35 U.S.C. §§102(b) and/or 103(a) over U.S. Patent No. 6,601,795 to Chen. Moreover, the Office Action rejects dependent Claim 11 under 35 U.S.C. §103(a) over Groutage in view of U.S. Patent No. 5,437,230 to Harris et al. and over Chen in view of Harris. The Office Action also rejects Claim 13 under 35 U.S.C. §103(a) over Groutage in view of U.S. Patent No. 2,732,656 to Cohn and over Chen in view of Cohn. Finally, the Office Action rejects Claim 15 under 35 U.S.C. §103(a) over Groutage in view of U.S. Patent No. 5,249,761 to Schroppel and over Chen in view of Schroppel.

As explained more fully below, the pending claims of the present application are patentably distinguishable from the cited references. Independent Claims 1 and 16 have been amended. In light of the amendments and subsequent remarks, Applicant respectfully requests reconsideration and allowance of the claims.

Restriction Requirement

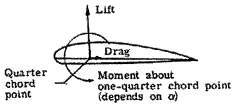
The Examiner finds that Applicant failed to traverse the restriction requirement in the reply of March 22, 2006 because the errors in the restriction requirement were not distinctly and specifically pointed out. Applicant respectfully disagrees, as the Applicant's response clearly indicated that the restriction of Species I and Species II was in error and provided an explanation pointing out the errors in the restriction requirement. In particular, and as indicated in the response to the restriction requirement, independent Claims 1 and 16 are generic and clearly read on dependent Claims 13 and 14, as Claims 1 and 16 recite wing actuators, while dependent Claims 13 and 14 provide exemplary embodiments of wing actuators. Applicant fails to understand how the Applicant's response was not considered a traversal of the restriction requirement.

Objection to the Drawings

Applicant respectfully disagrees with the objection to the figures. The Examiner indicates that the drawings must include every feature of the invention specified in the claims and requests that the Applicant provide a figure showing the attachment of the fuselage member proximate to one-quarter chord of the wing member, as recited by dependent Claim 7. However, 37 C.F.R. §1.81 simply requires an applicant to "furnish a drawing of his or her invention where necessary for the understanding of the subject matter sought to be patented," and the "drawings may include illustrations that facilitate the understanding of the invention." Applicant submits that one skilled in the art would be able to readily determine the attachment location at one-quarter chord, as opposed to other locations along the chord, such as the midpoint. As known to those of skill in the art, the chord is the distance between the leading and trailing edges of the wing member. For instance, for a rectangular wing, a one-quarter chord is simply the location at ¼ the distance from the leading edge of the wing member along the chord. As such, one skilled in the art would not need to rely on a figure to understand the subject matter disclosed in Claim 7. Furthermore, Applicant submits that the possibility of introducing new matter outweighs the burden on one of ordinary skill in the art in understanding the subject matter disclosed in Claim 7 of the present application.

Rejection under 35 U.S.C. §112, first paragraph

The Examiner rejects dependent Claim 7 under 35 U.S.C. §112, first paragraph, as purportedly failing to comply with the enablement requirement. Namely, the Examiner does not understand how the wing member may be attached at a one-quarter chord to the fuselage member. Applicant submits that one of ordinary skill in the art would be able to readily determine the location of the one-quarter chord on the wing member, as opposed to other locations on the wing, such as the midpoint, as recited in dependent Claim 6. As described above, the chord is conventionally known as the distance of a straight line between the leading and trailing edges of the wing member (see the exemplary illustration below).



(c)

(See http://www.centennialofflight.gov/essay/Theories_of_Flight/Two_dimensional_coef/TH14.htm)

For example, attachment at a one-quarter chord on a rectangular wing member is simply the attachment at a location that is ¼ the distance (i.e., 25%) from the leading edge of the wing member along the chord. As such, Applicant submits that rejection of Claim 7 for failing to comply with the enablement requirement under 35 U.S.C. §112, first paragraph, is overcome.

Rejections under 35 U.S.C. §§102(b) and 103(a)

The Examiner rejects independent Claims 1 and 16 under 35 U.S.C. §§102(b) and 103(a) over either Groutage or Chen. Groutage discloses a cruise missile having a single moveable wing. The moveable wing is positionable between a captive carry position, where the wing is aligned with the longitudinal axis of the missile's fuselage, and an extended free flight position, where the wing is positioned substantially perpendicular to the missile's fuselage. In addition, Groutage discloses a deployment mechanism that includes a spring loaded cable pulley arrangement that is activated upon the release of a quick release mechanism.

Furthermore, Chen discloses an air vehicle, such as an aircraft or missile, that has a pair of main wings. The wings are pivotable such that the wings may be yawed during flight. The wings can be mounted above or underneath the fuselage on opposite sides or on the same side of the fuselage.

Independent Claims 1 and 16 have been amended to recite a missile and missile system, respectively, that include a missile having an oblique wing member pivotally connected to a fuselage member, wherein the wing member is pivotable by a wing actuator from a position substantially aligned with the fuselage member to a predetermined sweep angle of less than 90 degrees at transonic speed during flight. For example, the wing member could be pivoted to a sweep angle of about 30-40 degrees at transonic speed such that one end of the wing member

points in the direction of flight, while the opposite end trails behind. Typically, the oblique member produces lower drag at transonic speeds than a conventional swept or unswept wing.

In contrast, Groutage discloses a cruise missile that is only capable of pivoting a moveable wing from a captive carry position that is aligned with the longitudinal axis of the fuselage to a free flight position where the wing is substantially perpendicular to the fuselage. Thus, Groutage nowhere discloses the wing at a sweep angle less than 90°. Figure 5 of Groutage provides further support that the wing is only capable of being positioned generally parallel or perpendicular to the longitudinal axis of the fuselage. In particular, Figure 5 illustrates a disc member (80) that includes detent notches (94, 96) for retaining the wing in free flight (i.e., perpendicular) and captive carry (i.e., parallel) positions, respectively. In addition, each independent claim of Groutage discloses that the moveable wing may be either aligned or perpendicular to the fuselage, as opposed to various oblique angles less than 90°. Furthermore, Groutage does not teach or suggest that the missile is capable of thrusting to transonic speed. Rather, Groutage only discloses that the missile includes a jet engine. As disclosed in the present application, wing design plays an instrumental role depending on whether the wing is subjected to subsonic, transonic, or supersonic speeds. Therefore, Groutage not teach or suggest a missile that is capable of thrusting to transonic speeds and/or a moveable wing that is capable of pivoting to sweep angles of less than 90° at transonic speed, as recited by independent Claims 1 and 16 of the claimed invention.

Moreover, Chen also fails to teach or suggest independent Claims 1 and 16 of the present application. In fact, Chen teaches away from the use of oblique wings. For instance, in the Background of the Invention, Chen discloses that an "[o]blique wing configuration has inherent stability and control disadvantages." Col. 2, lines 45-46. In addition, Chen discloses that "[t]he two problems of oblique wing are the coupling of roll and pitch movement, and the roll moment generated by the uneven distribution of lift along the oblique wing when the wing is yawed at a big angle from perpendicular to fuselage." Col. 6, lines 42-46. In any event, Chen only discloses a pair of scissor wings as opposed to an oblique wing, which is unlike the claimed invention. Therefore, Chen is also distinguishable from independent Claims 1 and 16 of the present application.

As a result, Applicant submits that the rejections of independent Claims 1 and 16 under 35 U.S.C. §§ 102(b) and 103(a) are overcome, as neither Groutage, Chen, nor any of the cited references, taken individually or in combination, discloses an oblique wing member pivotable by a wing actuator from a position substantially aligned with the fuselage member to a predetermined sweep angle of less than 90 degrees at transonic speed during flight. Because dependent Claims 2-13, 15, and 17-22 include each of the recitations of independent Claims 1 and 16, respectively, Applicant submits that each of the dependent claims is distinguishable from the cited references.

Moreover, although the dependent claims are distinguishable from the cited references for at least those reasons discussed above in conjunction with independent Claims 1 and 16, Applicant submits that the dependent claims include additional recitations that further patentably distinguish the claimed invention. For example, none of the cited references teach or suggest an oblique wing member attached to the fuselage member proximate to a one-quarter chord of the wing member, as recited by dependent Claim 7. Namely, none of the cited references disclose where along the chord that the wing member is attached to a fuselage. Applicant also respectfully disagrees that the inclusion of the alleged "criticality" of Claim 7 is irrelevant to the fact that none of the cited references teach or suggest Claim 7.

In addition, none of the cited references teach or suggest an antenna positioned within, and substantially along, an entire length of the wing member, as recited by dependent Claim 12. The Examiner takes Official Notice that an "antenna positioned within a wing is well known in this day and age and that it is obvious to use one to allow communications." Applicant respectfully requests that the Examiner provide a provide a reference or other evidence supporting the assertion of Official Notice, as the Examiner's conclusion is not "instant and unquestionable" as being well known at the time of the invention (MPEP § 2144.03) ("Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known."). In this regard, none of the cited references disclose an antenna positioned within a wing member and whether such antenna was "well known in this day and age" is irrelevant to whether an antenna within a wing member was

known at the time of the invention. Therefore, Applicant submits that further evidence supporting Official Notice is warranted.

Therefore, for each of the reasons above, Applicant submits that dependent Claims 7 and 12 are further distinct from the cited references taken individually or in combination.

CONCLUSION

In view of the amendments and remarks presented above, it is respectfully submitted that all of the present claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicant's undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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